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DEPARTMENT OF ENVIRONMENTAL QUALITY DIVISION OF WATER QUALITY

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MINERALS PROGRAM
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Reply to: State of Utah
Division of Water Quality
Department of Environmental Quality
Salt Lake City, Utah 84114-4870

December 23, 1991

Mr. Ed King
Jumbo Mining Company
6305 Fern Spring Cove
Austin, TX 78730

RE: Jumbo Mining-Drum Mine
Comments on Process Pond
Leakage Testing

Dear Mr. King:

We received the results of the Minnesota Water Balance Test (MBWT) from Mr. Hartshorn of Jumbo Mining Company on October 4, 1991. The tests were conducted for the process ponds. We have analyzed the information, and have the following comments:

1. The MWBT is one of the several methods to measure seepage in process ponds; not necessarily the only method approved by the division.
2. The conclusion of no seepage through the liner is at best, questionable. All liner systems leak due to material imperfection, construction and liner modification errors, and the effects of wear and aging. If the vertical scale is expanded, an average seepage rate of the liner can be derived. The slope of the individual graphs are not always parallel, which indicates a difference in water loss rate with respect to time, which is the seepage. Leakage from the ponds enters the native soils. Your lining system is now a concern because it is an antiquated single membrane system. The ground water permit will require construction of a new heap leach pad and ponds to the best available technology (BAT) be used. The existing ponds do not satisfy the BAT requirement.

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OIL GAS & MINING

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3. Our current BAT for ponds is that they be double-lined, as illustrated in our letter to your consultant, CBC Enviro, on August 14, 1991. This method of lining is advantageous, in that the seepage is contained to a degree, between the two liners, and is monitored by the dewatering sump. This is the most accurate method to measure seepage (through the upper liner) we are aware of. If the upper liner leakage rate exceeds a permitted rate, repairs are warranted.

Monitoring and Testing:

- A. We request you clarify the configuration of the monitoring holes below the ponds.
- B. If a Ground Water Permit is issued for the facility, it should clarify all monitoring frequency requirements.

In summary, inasmuch as the ponds leak, we will require that the process ponds be replaced with an approved double membrane liner system, prior to operating. We also request clarification of your monitoring holes below the ponds. The future ground water permit should address the monitoring proposals made in your letter.

Sincerely,



Kiran L. Bhayani, P.E., D.EE., Manager
Design Evaluation Section

DAR:rvg/mhf

cc: Wayne Hedberg, DOGM
Mark Novak, Division of Water Quality
Roger Foisy, Central Utah District
Jerry Riding, CBC Enviro Engineers

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